A STUDY TO DETERMINE THE EFFECTIVENESS OF CRYOTHERAPY ON PAIN EXPERIENCE DURING ARTERIO VENOUS FISTULA PUNCTURING AMONG PATIENTS UNDERGOING HEMODIALYSIS AT SELECTED HOSPITALS KHAMMAM, TELANGANA

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ABSTRACT

As fistulas persist longer and are less prone to complications like infections and clotting, they are the best option for gaining access to the system. Nevertheless, not all patients can have a fistula created since they may not have healthy enough blood vessels. There are some evidences to suggest that cryotherapy may be effective in reducing pain experienced during arteriovenous fistula puncturing among patients undergoing hemodialysis. One study found that patients who received cryotherapy prior to AVF puncturing reported less pain and discomfort compared to those who did not receive cryotherapy. The potential benefits of cryotherapy in this context are thought to be related to its ability to reduce inflammation and swelling, which can occur during AVF puncturing and can contribute to pain and discomfort. The study was conducted with quantitative research approach for a sample of 300 patients undergoing hemodialysis at selected dialysis Centre's and hospitals, Khammam, Telangana. Sample was selected by probability sampling- simple random Sampling technique. The data was collected by standardized numerical pain rating scale through observational method. The collected data was analyzed by using descriptive and inferential statistics. The intensity of the pain felt after puncturing an AV Fistula was quantified using a pain rating scale. Post-test mean ratings showed that patients in the treatment group experienced much less pain after having an arteriovenous Fistula inserted than those in the control group (7.06 vs. 1.28). T (13.48) = significantly different from zero (P0.001). Study concluded that Cryotherapy is an effective intervention to reduce AVF puncture pain.

KEY WORDS: *Cryotherapy on pain, arteriovenous fistula puncturing, fistula.*

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"Time is not a cure for chronic pain, but it can be crucial for improvement. It takes time to change, to recover, and to make progress."

Dr. Mel Pohl, A Day Without Pain

INTRODUCTION

The body is unable to eliminate waste products and excess fluid from the circulation when it has a reduced kidney function, also known as chronic renal failure. As a chronic disease, it takes time to develop and cannot be cured. This medical issue is also known by the name "chronic renal disease" (CKD). Chronic kidney inflammation, diabetes, and high blood pressure or hypertension are just a few of the numerous medical conditions that can contribute to renal failure. Dialysis involves the exchange of fluid and molecules between two compartments separated by a semipermeable membrane. Dialysis is a medical procedure in which waste products and excess fluid are removed from the body by passing blood through a semipermeable membrane into a dialysis solution. Its main purpose is to treat renal failure by balancing fluid and electrolyte levels and flushing out waste.

As fistulas persist longer and are less prone to complications like infections and clotting, they are the best option for gaining access to the system. Nevertheless, not all patients can have a fistula created since they may not have healthy enough blood vessels. A graft is the backup plan for gaining access. In most cases, catheters are only used temporarily, but in others, they become permanent. It is feasible to convert to a fistula from other forms of access in some cases. Pain is a negative feeling that can vary from being somewhat uncomfortable to excruciating. There are mental and physiological aspects to suffering. Physical pain is caused by nerves being stimulated. Pain might be localized in the site of an injury or illness like fibromyalgia, or it can spread throughout the entire body. Some nerve fibers are responsible for transmitting painful sensations to the brain, where they can be altered by a variety of psychological and physiological variables before they reach the conscious mind.

There are methods other than medication that may be used to alleviate pain. The patient's healthcare professional will advise them on appropriate treatment options. The medical professional will discuss the benefits of each therapy and which ones have the highest chance of relieving the discomfort. In certain cases, pain can be alleviated or better managed without the use of pharmaceuticals. A better quality of life may result. Therapies used often to alleviate pain.

METHODOLOGY

The study was conducted with quantitative research approach for a sample of 300 patients undergoing hemodialysis at selected dialysis Centre's and hospitals, Khammam, Telangana. Sample was selected by probability sampling- simple random Sampling technique. The data was collected by standardized numerical pain rating scale through observational method. The collected data was analyzed by using descriptive and inferential statistics.

DATA COLLECTION, ANALYSIS, FINDINGS AND RECOMMENDATIONS

Ethical approval was granted by the administrations of a few Khammam hospitals. Ice, produced at a temperature of 0^0C and wrapped in a towel, was administered to the site of the AV fistula prick for 2-4 minutes before puncture, and pain levels were measured using a standardized numerical scale based on observation and the participants' verbal reports of their experiences.

Table .1: Distribution of post-test pain scores for hemodialysis patients with arteriovenous fistula puncture: frequency and percentage in the control and experimental groups. N=300

Post test Pain Level	Experimental		Control	
	N	%	N	%
No pain	87	58.0%	0	0.0%
Mild pain	57	38.0%	5	3.3%
Moderate pain	6	4.0%	73	48.7%
Severe pain	0	0.0%	72	48.0%
Total	**150**	**100.0%**	**150**	**100.0%**

In the experimental group, 87 (58%) patients experienced high-frequency falls without any pain after intervention. A statistically significant difference was found between the experimental and control groups when 73 (48%), of the control group, experienced severe or moderate pain (2 259.436, P0.001).

Table .2: Comparison of posttest pain scores in both experimental and control group. N=300

Group	Mean score	Mean Difference	Standard deviation	t calculated value	Significance
Experimental	.64	5.773	.957	33.238	* **
Control	6.81	-.06	1.751	-1.681	

df(n-1) P=0.01

The statistically significant difference in means between the experimental and control groups (.64, 6.81), as indicated by the " t " value being greater than the table value at df 149, at P =0.01, demonstrates that cryotherapy is an effective intervention in reducing pain at the AVF site for clients undergoing hemodialysis (33.238).

DISCUSSION

Research was conducted on hemodialysis patients in khammam, Telangana, to see if the use of cryotherapy will reduce their pain during the creation of an arteriovenous fistula.

High-frequency free-falling experimental group finds no discomfort There were no reports of significant discomfort among the 87 (58%) individuals who had the procedure. whereas the following frequency drops with moderate and severe pain were also seen in the control group The pain levels of the experimental group are significantly lower than those of the control group (2 259.436, P=0.003).

Patients on hemodialysis report less AVF-related pain after receiving cryotherapy, as evidenced by a statistically significant difference between the means of the experimental and control groups (.64, 6.81), with an estimated " t " value larger than the table value at P = 0.001. (33.238).

The intensity of the pain felt after puncturing an AV Fistula was quantified using a pain rating scale. Post-test mean ratings showed that patients in the treatment group experienced much less pain after having an arteriovenous Fistula inserted than those in the control group (7.06 vs. 1.28). T (13.48) = significantly different from zero (P0.001).

RESULTS AND CONCLUSION

Study concluded that Cryotherapy is an effective intervention to reduce AVF puncture pain. It concluded that there is a significant difference in pain level after intervention (cryotherapy) in experimental group and control group at p=0.001.

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